

I (WE) CLAIM:

1. A method for determining a position of a mechanically rocked scan within a volume, the method comprising:
  - (a) determining first and second velocities of a mechanically rocked array at first and second different positions, respectively, the velocity being different at each of the first and second positions; and
  - (b) setting first and second scan positions as a function of the first and second velocities, respectively.
2. The method of Claim 1 wherein (a) comprises storing an array velocity profile having the velocities for various scan plane positions throughout the volume scan, the various scan plane positions including the first and second positions.
3. The method of Claim 2 wherein (a) comprises storing the array velocity profile for both the forward and reverse directions of the mechanically rocked array, the forward array velocity profile different than the reverse velocity profile.
4. The method of Claim 2 further comprising:
  - (c) measuring the array velocity profile prior to use by a customer.
5. The method of Claim 2 further comprising:
  - (c) predicting the array velocity profile from a programmed motor speed.
6. The method of Claim 1 wherein (a) comprises measuring velocity of the mechanically rocked array during use and wherein (b) comprises setting during the use.

7. The method of Claim 6 wherein (a) comprises:
  - (a1) measuring positions of the array during a scanning operation;
  - (a2) determining an amount of time between positions; and
  - (a3) calculating a velocity of the array at each of the positions.
8. The method of Claim 1 wherein (b) comprises setting a transmit position of at least one scan line.
9. The method of Claim 8 wherein (b) comprises setting the transmit position of a start of a planar scan.
10. The method of Claim 9 wherein (b) comprises setting the transmit position of the start of the planar scan such that a base scan line is at a same position in both forward and reverse direction scans of the array.
11. The method of Claim 1 wherein (b) comprises setting a spatial relationship of previously acquired data as a function of the first and second velocities.
12. The method of Claim 1 wherein (b) comprises varying start positions for different scan planes as a function of different velocities including the first and second velocities, scan planes associated with higher velocities starting at elevation positions further away from a center scan line position than scan planes associated with lower velocities.
13. The method of Claim 1 wherein a forward direction velocity of the array is different than a reverse direction velocity for the first position, the first velocity being the forward direction velocity, and wherein (b) comprises aligning a forward direction scan plane relative to a reverse direction scan plane as a function of the forward and reverse direction velocities.
14. A system for determining a position of a mechanically rocked scan within a volume, the system comprising:

a mechanically rocked array; and

a beamformer operable to set first and second scan positions as a function of first and second different velocities, respectively, of the mechanically rocked array.

15. The system of Claim 14 further comprising a memory connected with the beamformer, the memory operable to store an array velocity profile having velocities including the first and second velocities for various scan plane positions throughout the volume scan.

16. The system of Claim 15 wherein the memory is operable to store the array velocity profile for both forward and reverse directions of the mechanically rocked array, the forward array velocity profile different than the reverse velocity profile, the beamformer operable to set the scan positions including the first and second scan positions differently for the reverse direction than for the forward direction.

17. The system of Claim 14 further comprising:  
an encoder connected with the array;  
wherein the beamformer is operable to determine an array velocity in response to inputs from the encoder.

18. The system of Claim 14 wherein the beamformer is operable to set a transmit position of a start of a planar scan as a function of the first velocity.

19. The system of Claim 14 wherein the beamformer is operable to vary start positions for different scan planes as a function of different velocities, scan planes associated with higher velocities starting at elevation positions further away from a center scan line position than scan planes associated with lower velocities.

20. A method for determining a position of a scan plane of a mechanically rocked scan within a volume, the method comprising:

- (a) determining a velocity for each of a plurality of scan positions, the velocities for at least two of the scan positions being different; and
- (b) starting each of a plurality of scans as a function of the respective velocities and scan positions.

21. The method of Claim 20 wherein (a) comprises determining from a stored velocity profile.

22. The method of Claim 20 wherein (a) comprises determining from a measured position during use.

23. The method of Claim 20 wherein (b) comprises starting planar scans earlier relative to the respective scan position for higher velocities than for lower velocities.

24. The method of Claim 20 wherein (b) comprises aligning a position of at least one scan line of a reverse direction scan with a forward direction scan.